

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Cancelled)

2. (Previously Presented) A nonvolatile variable resistor comprising:
a first electrode and a second electrode facing each other and formed on a substrate;
a nonvolatile variable resistance body formed between the first electrode and the second electrode, wherein the first electrode and the second electrode face each other in a direction of a surface of the substrate wherein the nonvolatile variable resistance body is formed on an outer surface of the first electrode, and the second electrode is formed on an outer surface of the nonvolatile variable resistance body.

3. (Original) A nonvolatile variable resistor according to claim 2, wherein
the first electrode is columnar or prismatic.

4. (Original) A nonvolatile variable resistor according to claim 3, wherein
the nonvolatile variable resistance body is made of a manganese oxide of a
perovskite structure.

5. (Previously Presented) A nonvolatile variable resistor according to claim 4,
wherein the manganese oxide is any of $\text{Pr}_{(1-x)}\text{Ca}_x\text{MnO}_3$, $\text{La}_{(1-x)}\text{Ca}_x\text{MnO}_3$, and $\text{La}_{(1-x-y)}\text{Ca}_x\text{Pb}_y\text{MnO}_3$.

6. (Previously Presented) A nonvolatile variable resistor according to claim 5, wherein the manganese oxide is any of $\text{Pr}_{0.7}\text{Ca}_{0.3}\text{MnO}_3$, $\text{La}_{0.65}\text{Ca}_{0.35}\text{MnO}_3$ and $\text{La}_{0.65}\text{Ca}_{0.175}\text{Pb}_{0.175}\text{MnO}_3$.

7. (Cancelled)

8. (Cancelled)

9. (Cancelled) A nonvolatile variable resistor comprising:
a first electrode and a second electrode facing each other and formed on a substrate;
a nonvolatile variable resistance body formed between the first electrode and the second electrode, the first electrode and the second electrode face each other in a direction of a surface of the substrate, the first electrode being columnar or prismatic; wherein the nonvolatile variable resistance body is made of a manganese oxide of a perovskite structure, and wherein the manganese oxide is any of $\text{Pr}_{(1-x)}\text{Ca}_x\text{MnO}_3$, $\text{La}_{(1-x)}\text{Ca}_x\text{MnO}_3$, and $\text{La}_{(1-x-y)}\text{Ca}_x\text{Pb}_y\text{MnO}_3$.

10. (Cancelled) A nonvolatile variable resistor according to claim 9, wherein the manganese oxide is any of $\text{Pr}_{0.7}\text{Ca}_{0.3}\text{MnO}_3$, $\text{La}_{0.65}\text{Ca}_{0.35}\text{MnO}_3$ and $\text{La}_{0.65}\text{Ca}_{0.175}\text{Pb}_{0.175}\text{MnO}_3$.

11. (Previously Amended) A nonvolatile variable resistor according to claim 2, wherein the nonvolatile variable resistance body is made of a manganese oxide of a perovskite structure.

12. (Previously Presented) A nonvolatile variable resistor according to claim 11, wherein the manganese oxide is any of $\text{Pr}_{(1-x)}\text{Ca}_x\text{MnO}_3$, $\text{La}_{(1-x)}\text{Ca}_x\text{MnO}_3$, and $\text{La}_{(1-x-y)}\text{Ca}_x\text{Pb}_y\text{MnO}_3$.

13. (Previously Presented) A nonvolatile variable resistor according to claim 12, wherein the manganese oxide is any of $\text{Pr}_{0.7}\text{Ca}_{0.3}\text{MnO}_3$, $\text{La}_{0.65}\text{Ca}_{0.35}\text{MnO}_3$ and $\text{La}_{0.65}\text{Ca}_{0.175}\text{Pb}_{0.175}\text{MnO}_3$.

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27. (Previously Presented) A nonvolatile variable resistor comprising:
a first electrode and a second electrode facing each other and formed on a substrate;

a semiconductor switching element formed in the substrate, the switching element being connected to the first electrode;

a nonvolatile variable resistance body formed between the first electrode and the second electrode, a composition of the nonvolatile variable resistance body being chosen to facilitate nonvolatility of the variable resistor;

wherein the first electrode and the second electrode face each other in a direction of a surface of the substrate, wherein the nonvolatile variable resistance body is formed

on an outer surface of the first electrode, and wherein the second electrode is formed on an outer surface of the nonvolatile variable resistance body.

28. (Cancelled) A nonvolatile variable resistor according to claim 27, wherein the nonvolatile variable resistance body is formed on an outer surface of the first electrode, and the second electrode is formed on an outer surface of the nonvolatile variable resistance body.

29. (Previously Amended) A nonvolatile variable resistor according to claim 27, wherein the first electrode is columnar or prismatic.

30. (Previously Amended) A nonvolatile variable resistor comprising:
a first electrode and a second electrode facing each other and formed on a substrate; and

a nonvolatile variable resistance body, a read-out resistance value of which varies by applying a voltage pulse between the first electrode and the second electrode, formed between the first electrode and the second electrode, wherein

the first electrode and the second electrode face each other in a direction of a surface of the substrate.

31. (Previously Presented) A nonvolatile variable resistor according to claim 30, wherein

the nonvolatile variable resistance body is made of a manganese oxide of a perovskite structure.

32. (Previously Amended) A nonvolatile variable resistor according to claim 31, wherein the manganese oxide is any of $\text{Pr}_{(1-x)}\text{Ca}_x\text{MnO}_3$, $\text{La}_{(1-x)}\text{Ca}_x\text{MnO}_3$, and $\text{La}_{(1-x-y)}\text{Ca}_x\text{Pb}_y\text{MnO}_3$.

33. (Previously Amended) A nonvolatile variable resistor according to claim 32, wherein the manganese oxide is any of $\text{Pr}_{0.7}\text{Ca}_{0.3}\text{MnO}_3$, $\text{La}_{0.65}\text{Ca}_{0.35}\text{MnO}_3$ and $\text{La}_{0.65}\text{Ca}_{0.175}\text{Pb}_{0.175}\text{MnO}_3$.

34. (Previously Amended) A nonvolatile variable resistor according to claim 30, wherein the second electrode is concentric about the first electrode.

35. (Previously Amended) A memory cell comprising:
a nonvolatile variable resistor; and
a selective device, connected to the nonvolatile variable resistor, for selecting
variable resistor, wherein
the nonvolatile variable resistor comprising:
a first electrode and a second electrode facing each other and formed on a
substrate; and
a nonvolatile variable resistance body, a resistance value of which varies
reversibly by applying a voltage pulse between the first electrode and the second
electrode, formed between the first electrode and the second electrode, and
the first electrode and the second electrode face each other in a direction of a
surface of the substrate.